Notes on the genus *Auplopus* Spinola (Hymenoptera: Pompilidae) with a newly recorded species from China

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Abstract: One species, *Auplopus smithi* (Banks, 1934) (Pompilidae: Pepsinae: Agenillini), is redescribed and illustrated from China for the first time. A species checklist to the genus *Auplopus* Spinola from China is provided, including a catalogue and distribution of 19 known species. In addition, a key to the species of the genus *Auplopus* from China is provided.

Key words: Pompiloidea; Pepsinae; Agenillini; checklist; key; taxonomy

中国奥沟蛛蜂属研究及一中国新纪录种记述（膜翅目：蛛蜂科）

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摘要：记述奥沟蛛蜂属 *Auplopus* Spinola 1 中国新纪录种：史氏奥沟蛛蜂 *Auplopus smithi* Banks, 1934，提供了新纪录种的形态描述、种类鉴别特征图及该属中国已知种类分种检索表，并详细记述了该属中国已知种异名录及其分布。

关键词：蛛蜂总科；沟蛛蜂亚科；无锯沟蛛蜂族；名录；检索表；分类

Introduction

The genus *Auplopus* Spinola belongs to the Pepsinae of Pompilidae in Hymenoptera. It currently includes 123 species with 13 subspecies of small to medium sized predatory wasps in the world. Of these, 18 species occur in China distributed in Liaoning, Shandong, Shanxi, Hubei, Zhejiang, Fujian, Jiangxi, Guangxi, Sichuan, Yunnan, Gansu, and Taiwan (Baltazar 1966; Banks 1934; Bingham 1897; Cameron 1891; Gussakovskij 1932; Haupt 1938; Ishikawa 1967; Kohl 1884; Rohwer 1919; Smith 1857, 1873a, b; Tsuneki 1988, 1989; Yasumatsu 1939, 1943).

The diagnosis for *Auplopus* Spinola is as follows: mandible bidentate; inner orbits of eyes often slightly convergent at median and upper areas; metapostnotum transversally striate, anterior and posterior border medially almost parallel; tarsomere 5 ventrally sometimes with pair of submedian rows of setae; gastral tergum I often without a lateral crease, some species with short lateral crease; pygidial area of female smooth and shiny, sometimes with punctures and bristles; male subgenital plate rather large, with a high, sharp, longitudinal ridge (Banks 1934).

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During our study of Chinese Pepsinae (Ma & Li 2011), 19 known species of the genus *Auplopus* were identified, of which one newly recorded species from China was discovered. This new record is redescribed and illustrated and a key to the Chinese species in this genus is given below.

Material and methods

The examined specimens are deposited in Yunnan Agricultural University, Kunming (YNAU). Olympus stereomicroscope (SZ Series, Japan) with an ocular micrometer was used in this study. Photographs of the habitus were made with Keyence (VHX–H4M). Abbreviations in the text are as follows: A1, A2…—antennal segment 1, 2…; HL—head length; HW—head width; OCD—ocello-occipital distance; Od—anterior ocellar diameter; OOD—ocellocular distance; POD—postocellar distance.

Taxonomy

1. ***Auplopus smithi*** **(Banks, 1934)** (Figs. 1–7), new record from China

Conagenia smithi Banks, 1934, *Proceedings of the American Academy of Arts and Sciences Boston*, 69: 70.

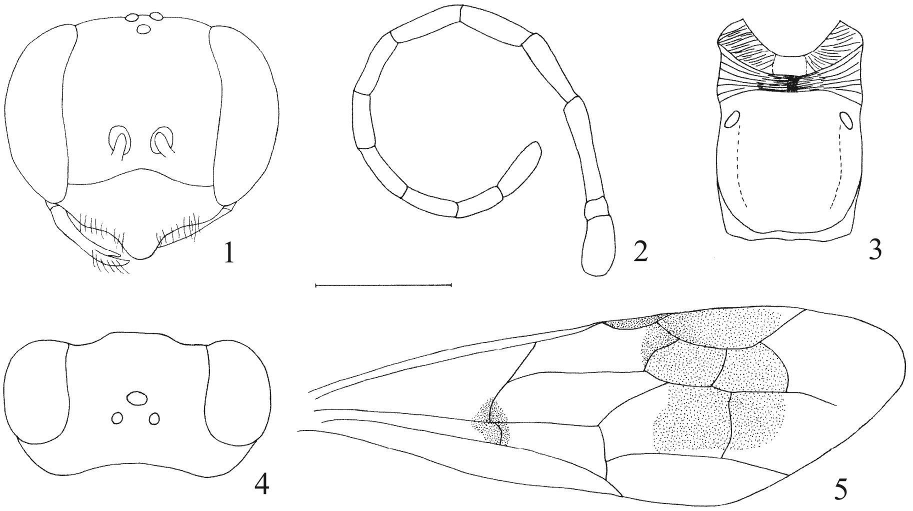
Auplopus smithi: Baltazar, 1966, *Pacific Insect Monographs*, 8: 311.

Female. Body length 6–8 mm. Black; mandible apically, clypeus apically, tegula and vein fulvous to dark brown. Fore wing hyaline and with two dark markings; the large one at subapical area, from marginal cell, submarginal cell 1 apically, submarginal cells 2 and 3, to discal cells 2 and 3 largely; the small one at base, at intersection of basal cell, subbasal cell, discal cell 1 and subdiscal cell 1. Setae on clypeus and mandible sparse, erect, yellow; head, thorax and gastral segment with sparse pubescence; head and thorax alutaceous.

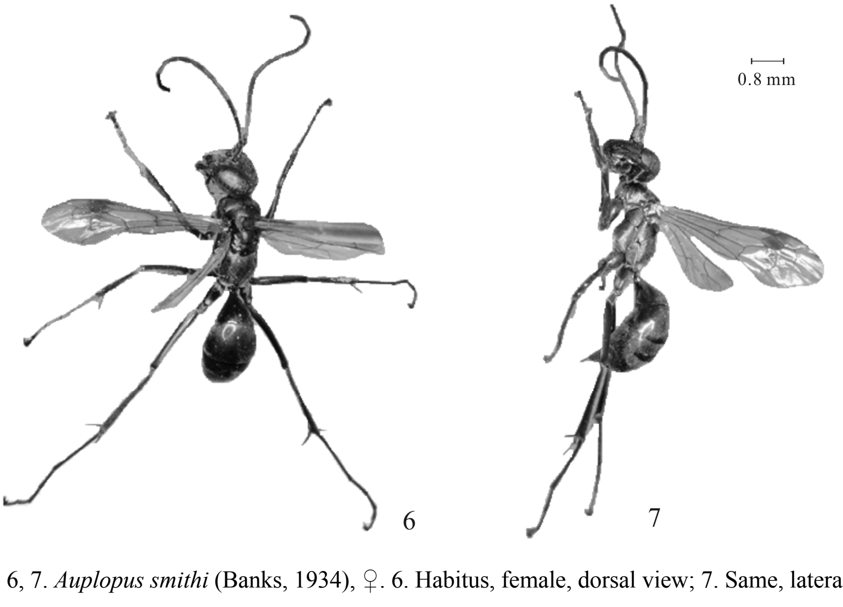
Anterior margin of clypeus with a conspicuous nose-like projection at middle (Fig. 1). Interantennal tubercle and frontal line lacking. Ocelli in acute triangle, anterior ocellus slightly larger than posterior ones (Figs. 1, 4). Lower half of inner orbits almost parallel to each other, upper inner orbits slightly convergent (Figs. 1, 4). Vertex flat. HW : HL = 11 : 10; POD : OOD : Od : OCD = 8 : 10 : 4 : 8; A1: A2: A3: A4: A5: A6: A7: A11: A12 = 15 : 5 : 25 : 18 : 18 : 16 : 15 : 13 : 15; length of A3 = apical width × 5 (Fig. 2).

Pronotum with a pair of projections at anterior margin, posterior margin arcuate; in lateral view, anterior slope and dorsal surface defined well, forming an obtuse angle. Pronotum conspicuously shorter than mesoscutum, relative length of pronotum and mesoscutum medially = 2 : 5. Mesoscutum with parapsidal sutures nearly complete, reaching near to 1/3 of basal area. Scutellum and metanotum conspicuously elevated medially, metanotum with dense, sturdy, oblique rugae laterally. Metapostnotum with one small concave medially and dense, transverse striations, its anterior and posterior margin nearly parallel (Fig. 3). Propodeum with dense, transverse striations, dorsal surface conspicuously convex, without median groove (Fig. 3). Relative length of scutellum, metanotum, metapostnotum and propodeum medially = 15 : 8 : 5 : 30.

Relative length of fore, mid and hind femur/tibia = 30/25, 32/30, 40/45. Inner margin of fore tibia with 1–2 rows of slender, long spines; mid and hind tibiae each with 4 rows of slender, long spines; length of hind tibial spur much shorter than half of tarsomere 1. Outside of claw with one slender tooth subapically. Fore wing with three submarginal cells, length of stigma equal to half of marginal cell, recurrent vein 1 ending in middle of submarginal cell 2; recurrent vein 2 ending in base of submarginal cell 3 (Fig. 5); hind wing vein M + CuA diverging after cu-a.



Figures 1–5. *Auplopus smithi* (Banks, 1934), ♀. 1. Head, frontal view; 2. Antenna; 3. Metanotum, metapostnotum and propodeum, dorsal view; 4. Head, dorsal view; 5. Fore wing. Scale bar = 1.40 mm.



Figures 6, 7. *Auplopus smithi* (Banks, 1934), ♀. 6. Habitus, female, dorsal view; 7. Same, lateral view.

Metasoma petiolate; gastral tergum 1 without lateral line; basal 1/3 of sternum 2 with obvious, transverse groove. Pygidial plate large, smooth and with sparse, fine punctures.

Male. No available in this study. According to Banks (1934) and Baltazar (1966). It is similar to female except as follows: A2 beneath, tibial spur and gastral tergum 7 basally silvery; lower frons near eyes with yellow spot; length of hind tibial spur at least 2/3 of tarsomere 1.

Specimens examined. 4♀, **China,** Yunnan, Mengxiu, Tuanjie Village, 30-IV-2013, coll. Xiaoling JI; 1♀, China, Yunnan, Mangshi, Dahe, 07-V-2013, coll. Xiaoling JI; 1♀, Yunnan, Lianghe, Zhedao, Longhe, 05-V-2013, coll. Xiaoling JI; 1♀, Yunnan, Pu'er, Mangjingfeng, 27-IV-2013, coll. Jie ZENG; 1♀, Yunnan, Jinghong, 30-VII-2003, coll. Peng WANGg.

Distribution. China (Yunnan); Philippines (Baltazar 1966; Banks 1934).

2. ***Auplopus aegina*** **(Smith, 1857)**

Pompilus (Aegina) aegina Smith, 1857, *Journal of the Proceedings of the Linnean Society, Zoology*, 2: 94.

Pseudagenia aegina: Kohl, 1884, *Verhandlungen der kaiserlich-königlichen Zoologisch-Botanischen Gesellschaft in Wien*, 34: 42.

Pseudagenia aegina: Cameron, 1891, *Memoirs and Proceedings of the Manchester Literary & Philosophical Society*, 4(4): 451.

Conagenia aegina: Banks, 1934, *Proceedings of the American Academy of Arts and Sciences Boston*, 60(1): 71.

Auplopus aegina: Baltazar, 1966, *Pacific Insect Monographs*, 8: 311.

Distribution. China (Guangxi, Yunnan, Taiwan); Burma; Borneo; Ceylon; India; Philippines (Baltazar 1966; Banks 1934; Cameron 1891; Kohl 1884; Smith 1857).

3. ***Auplopus alishanus*** **Ishikawa, 1967**

*Auplopus alishanu*s Ishikawa, 1967, *Bulletin of the National Science Museum, Tokyo*, 10(1): 4.

Distribution. China (Zhejiang, Sichuan, Taiwan) (Ishikawa 1967).

4. ***Auplopus chiponensis*** **(Yasumatsu, 1939)**

Pseudagenia chiponensis Yasumatsu, 1939, *Mushi*, 12(1): 73.

Auplopus chiponensis: Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 61.

Distribution. China (Shanxi, Zhejiang, Yunnan, Taiwan) (Tsuneki 1989; Yasumatsu 1939).

5. ***Auplopus chusanensis*** **(Haupt, 1938)**

Pseudagenia chusanensis Haupt, 1938, *Notes d'Entomologie Chinoise*, 5(5): 36.

Auplopus chusanensis: Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 60.

Distribution. China (Zhejiang, Yunnan, Taiwan) (Haupt 1938; Tsuneki 1989).

6. ***Auplopus constructor*** **(Smith, 1873)**

Agenia constructor Smith, 1873a, *The Transactions of the Entomological Society of London*, p. 190.

Pseudagenia appendiculata Gussakvskij, 1932, *Arkiv för Zoologi*, 24A (10): 39.

Auplopus constructor: Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 75.

Distribution. China (Hubei, Zhejiang, Fujian, Taiwan); Japan; Russia (Gussakvskij 1932; Smith 1873; Tsuneki 1989).

7. ***Auplopus deceptrix*** **(Smith, 1873)**

Agenia deceptrix Smith, 1873b, *The Annals and Magazine of Natural History*, 4(12): 447.

Pseudagenia deceptrix: Bingham, 1897, *The Fauna of British India, including Ceylon and Burma. Hymenoptera* , I: 110.

Auplopus deceptrix: Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 50.

Distribution. China (Zhejiang, Fujian, Guangxi, Yunnan, Gansu, Taiwan) (Bingham 1897; Smith 1873; Tsuneki 1989).

8. ***Auplopus formosanus*** **(Yasumatsu, 1939)**

Pseudagenia formosana Yasumatsu, 1939, *Mushi*, 12(1): 73; Yasumatsu, 1943, *Transactions of the Natural History Society of Taiwan*, 33: 450.

Auplopus formosana: Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 56.

Distribution. China (Taiwan) (Yasumatsu 1939, 1943; Tsuneki 1989).

9. ***Auplopus hombukeanus*** **Tsuneki, 1989**

Auplopus hombukeanus Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 53.

Distribution. China (Taiwan) (Tsuneki 1989).

10. ***Auplopus hoorai*** **Tsuneki, 1989**

Auplopus hoorai Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 70.

Distribution. China (Zhejiang, Fujian, Yunnan, Taiwan) (Tsuneki 1989).

11. ***Auplopus kuanghuanus*** **Tsuneki, 1989**

Auplopus kuanghuanus Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 71.

Distribution. China (Zhejiang, Yunnan, Taiwan) (Tsuneki 1989).

12. ***Auplopus kuarensis*** **Tsuneki, 1989**

Auplopus kuarensis Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 65.

Distribution. China (Taiwan) (Tsuneki 1989).

13. ***Auplopus laeviculus*** **(Bingham, 1897)**

Pseudagenia laevicula Bingham, 1897, *The Fauna of British India, including Ceylon and Burma. Hymenoptera*, I: 118.

Conagenia williamsi: Banks, 1934, *Proceedings of the American Academy of Arts and Sciences Boston*, 69: 69.

Auplopus williamsi: Baltazar, 1966, *Pacific Insect Monographs*, 8: 316.

Auplopus williamsi: Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 77.

Distribution. China (Yunnan, Taiwan); India; Philippines; Sri Lanka (Baltazar 1966; Banks 1934; Bingham 1897; Tsuneki 1989).

14. ***Auplopus morota*** **(Banks, 1934)**

Pseudagenia morota Banks, 1934, *Proceedings of the American Academy of Arts and Sciences Boston*, 60(1): 55;

Auplopus morota Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 57.

Distribution. China (Liaoning, Shandong, Zhejiang, Yunnan, Taiwan); Philippines (Banks 1934; Tsuneki 1989).

15. ***Auplopus murotai*** **Tsuneki, 1989**

Auplopus murotai Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 73.

Distribution. China: Shanxi, Zhejiang, Fujian, Guangxi, Taiwan (Tsuneki 1989).

16. ***Auplopus nambui*** **Tsuneki, 1989**

Auplopus nambui Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 68.

Distribution. China: Taiwan (Tsuneki 1989).

17. ***Auplopus ochraceus*** **(Haupt, 1938)**

Pseudagenia ochracea Haupt, 1938, *Notes d'Entomologie Chinoise*, 5(5): 35.

Pseudagenia ochracea: Yasumatsu, 1943, *Transactions of the Natural History Society of Taiwan*, 33: 450.

Auplopus ochraceus: Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 52.

Distribution. China (Jiangxi, Taiwan); Japan (Haupt 1938; Tsuneki 1989; Yasumatsu 1943).

18. ***Auplopus okawa*** **(Rohwer, 1919)**

Pseudagenia okawa Rohwer, 1919, *Bulletin. Reports of Work of the Experiment Station of the Hawaiian Sugar Planters' Association. Entomological Series*, 14(1): 5.

Auplopus okawa: Tsuneki, 1988, *Special Publications of the Japan Hymenopterists Association*, 34: 62.

Distribution. China (Taiwan); Philippines (Rohwer 1919; Tsuneki 1988).

19. ***Auplopus pempuchiensis*** **Tsuneki, 1989**

Auplopus pempuchiensis Tsuneki, 1989, *Special Publications of the Japan Hymenopterists Association*, 35: 64.

Distribution. China (Taiwan) (Tsuneki 1988).

Key to the species of *Auplopus* Spinola from China

1. Anterior margin of clypeus with a conspicuous nose-like projection at middle ························ 2
-. Anterior margin of clypeus normally produced, not nose-like ························ 5
2. Interantennal tubercle present ························ 3
-. Interantennal tubercle absent ························ 4
3. Thorax and propodeum reddish-brown; frontal line complete, reaching to anterior-ocellus ························ *A. aegina* (Smith)
-. Thorax and propodeum black; frontal line distinct only on upper slope of antennal tubercle ························ *A. constructor* (Smith)

4. Propodeum without median groove; fore wing with recurrent vein 1 ending in middle of submarginal cell 2 ……… *A. smithi* (Banks)
-. Propodeum with conspicuous median groove; fore wing with recurrent vein 1 ending in apex of submarginal cell 2 ……… *A. laeviculus* (Bingham)
5. Wings hyaline, without dark marking ……… 6
-. Wings hyaline, with dark marking ……… 13
6. Propodeum without median groove ……… 7
-. Propodeum with median groove ……… 9
7. In lateral view, anterior slope and dorsal surface of pronotum forming an obtuse angle; ocelli in right triangle ……… *A. kuanghuanus* Tsuneki
-. Boundary of anterior and dorsal surfaces of pronotum inconspicuous; ocelli in acute triangle ……… 8
8. Length of gastral tergum 1 about 1.5 times of width at apex; head, thorax and propodeum with long, sparse, erect, white setae ……… *A. kuarensis* Tsuneki
-. Length of gastral tergum 1 about 2 times of width at apex; head, thorax and propodeum without long, erect, white setae ……… *A. nanbui* Tsuneki
9. Yellowish brown; clypeus, lower frons and mandible apically yellow, lateral propodeum and hind femur with black spots ……… *A. hombukeanus* Tsuneki
-. Black ……… 10
10. Ocellar triangle conspicuously convex; length of metanotum longer than half of metapostnotum ……… *A. okawa* (Rohwer)
-. Ocellar triangle flat; length of metanotum equal to half of metapostnotum ……… 11
11. OOD = POD; length of A3 longer than A1+A2 ……… *A. formosanus* (Yasumatsu)
-. OOD > POD; length of A3 shorter than A1+A2 ……… 12
12. Propodeum with conspicuous median groove; ocelli in right triangle; length of stigma shorter than half of marginal cell ……… *A. murotai* Tsuneki
-. Propodeum with shallow median groove; ocelli in acute triangle; length of stigma equal to half of marginal cell ……… *A. chiponensis* (Yasumatsu)
13. Fore wing distinctly bifasciated ……… *A. morota* (Banks)
-. Fore wing with one marking or apical band ……… 14
14. Fore wing with large apical band, extending to apex of submarginal cell 1 and base of discal cell 2 ……… 15
-. Fore wing with one small marking, at marginal cell largely, submarginal cells 1 and 2, and discal cell 2 largely ……… 17
15. Black; clypeus except apical area, A1–A3, pronotum, scutellum medially, metanotum, gastral terga I–V apically and sternum VI yellowish brown ……… *A. pempuchiensis* (Tsuneki)
-. Fulvous ……… 16
16. Anterior pronotum with lateral angle ……… *A. deceptrix* (Smith)
-. Anterior pronotum without lateral angle ……… *A. ochraceus* (Haupt)
17. Frontal line lacking ……… *A. hooray* Tsuneki
-. Frontal line present ……… 18
18. Frontal line complete, reaching to anterior-ocellus ……… *A. chusanensis* (Haupt)
-. Frontal line incomplete, reaching to upper slope of antennal tubercle ……… *A. alishanus* Ishikawa

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